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STUDIES OF PERUVIAN BIRDS. X[1]

THE FORMICARIAN GENUS *THAMNOPHILUS*. PART II

By JOHN T. ZIMMER

I am greatly indebted to Mr. W. E. C. Todd of the Carnegie Museum, Pittsburgh, and Dr. Janusz Domaniewski of the Polish Museum of Natural History, Warsaw, for the loan of specimens which have aided in the study of certain of the species treated in the present account.

Thamnophilus schistaceus schistaceus D'Orbigny

Thamnophilus schistaceus D'ORBIGNY, 1836, 'Voy. Amér. Mérid.,' IV (3), Oiseaux, p. 170—Bolivian Andes, vicinity of Cochabamba = Yuracares, n. Bolivia; ♂; Paris Mus.

This species is not satisfactorily known at present. Two of its subspecies, *capitalis* and *heterogynus*, are quite distinct and usually easily recognizable. Intergradation of typical *s. schistaceus* with *s. capitalis* occurs in northern Perú over a wide belt, at the opposite ends of which there is a decided approach toward the adjacent forms, *capitalis* in the north and *schistaceus* in the southeast. This matter is discussed under *T. s. dubius*.

East of the range of *capitalis* on the south bank of the Amazon, *heterogynus* occurs. It was described from Teffé and, as shown by specimens before me, ranges eastward to the left bank of the Rio Madeira. It probably does not ascend very far up the Purús, Juruá, or Madeira rivers, for specimens from the upper portions of these streams have been identified with *schistaceus;* the females, at least, would not be liable to confusion in identification.

On the Rio Madeira, Hellmayr has recorded *schistaceus* from Humaythá and Marmellos, both on the left bank. The Marmellos birds, being males, might be extreme examples of *heterogynus* but two of the Humaythá skins are females which Hellmayr mentions as being quite distinct from *heterogynus*.

[1]Earlier papers in the series comprise American Museum Novitates Nos, 500, 509, 523, 524, 538, 545, 558, 584, and 646.

It is evident, therefore, that *schistaceus* descends the left bank of the Madeira at least as far as Humaythá. On the right bank another complication is met. There are records of *schistaceus* down the whole course of the stream to Borba, and east to the left bank of the Tapajoz at Villa Braga and Boim, while from east of the Tapajoz another form, *T. s. inornatus*, has been described.

I have at hand no material from the region of the upper Madeira except a female from Barão Melgaço on the Gy-Paraná, which is typical neither of *schistaceus* nor of *inornatus*. From the neighborhood of Borba I have four males and six females; from the Amazon west of the Tapajoz, two males and three females; from the left bank of the Tapajoz, five males and four females; from the right bank of the Tapajoz, seven males and three females; left bank of the Xingú, one male, one female; right bank, three males, six females; right bank of the Tocantins, one male. There is some variation in this material and some inconsistency at Borba, but I am unable to draw any line through the series as definite as that which seems to separate the series as a whole from Bolivian birds. The males all have a certain amount of dusky shading on the centers of the coronal feathers, and although the skin with the heaviest black on the crown is from the right bank of the Tapajoz, others from the same region and from the Xingú have no more than some of the more western specimens. Some have the belly rather whitish, but others do not, and both extremes are found on both sides of the Tapajoz.

In general, however, the males are darker above than Bolivian males and reach a greater extreme of paleness below, while there are more frequent traces of whitish tips on the upper wing-coverts. The females are distinguished by a greater intensity of rufous coloration on the top of the head and a more deeply colored back, while the upper wing-coverts more frequently show bright tips and the sides of the head are brighter, more buffy and less grayish.

As to size, there is little that is conclusive. The males from east of the Tapajoz have the wings, 63–68 mm.; tail, 50–55; west of the Tapajoz, wings, 60–67.25 mm.; tail, 50–54; Bolivia, wings, 61–68.5 mm.; tail, 48–54. Females from east of the Tapajoz, wings, 64–66 mm.; tail, 53–55.5; west of the Tapajoz, wings, 63–68 mm.; tail, 54–56.5; Bolivia, wings, 61–67 mm.; tail, 50–54 (one specimen has wings, 58.5; tail, 46).

Two females from Borba do not fit well into the series, being distinctly grayer on the back than either *inornatus* or *schistaceus*, but the top of the head is bright and agrees much better with the color of *inornatus*. On the other hand, five females from Igarapé Auará, a very short

distance above Borba, are rather brighter above and below than typical *inornatus* and may indicate a slight trend toward *heterogynus* of the west bank of the Madeira.

The conclusion thus seems justified that *inornatus* ranges west to the right bank of the Madeira near its mouth and a short distance up the stream, merging into *schistaceus* somewhere on the way to Bolivia.

West of the upper Madeira, *schistaceus* extends to the upper Purús and upper Juruá, up the Mamoré and Beni into northern Bolivia and western Matto Grosso, Brazil, and up the Madre de Dios into southeastern Perú. Two males and one female from Astillero and one male and two females from Río Tavara, Perú, are not separable from Bolivian birds and corroborate Hellmayr's records of *schistaceus* from Yahuarmayo and Río San Gaban.

Thamnophilus schistaceus dubius (Berlepsch and Stolzmann)

Dysithamnus dubius Berlepsch and Stolzmann, 1894, Ibis, p. 393—La Merced, Perú; ♂; Warsaw Mus.

Dysithamnus schistaceus hellmayri Cory, 1916 (August), Field Mus. Nat. Hist. Publ., Orn. Ser., I, p. 338—Rioja, n. Perú; ♂; Field Mus. Nat. Hist.

The central part of Perú is inhabited by birds so exactly intermediate between Bolivian *schistaceus* and Ecuadorian *capitalis* that the recognition of a distinct subspecies becomes of value only because of the extent of territory occupied by the intermediate individuals. Certain examples from the different parts of this range are very like one extreme or the other and the problem of delimiting the range thus becomes difficult though necessary because of the application of the different names which have been given at different points.

Berlepsch and Stolzmann described *dubius* from the Chanchamayo Valley on characters which appeared to exist in a male from La Merced. The bill was thought to be longer than in *schistaceus*, and much more compressed; the rectrices were less graduated and the lateral ones very little margined with white at the tips. All these characters, however, are variable ones which appear in birds from different regions. Hellmayr (Arch. Naturg., LXXXV, A (10), p. 94, 1920) discussed a male from Chanchamayo which was not separable from Bolivian examples of *schistaceus*, having only a slightly more slender bill but none of the other characters of *dubius;* there was no trace of dark centers on the feathers of the crown as in males from northern Perú (Yurimaguas, Chayavitas, Maynas, and Rioja).

These northern birds had been characterized by Hellmayr in 1907

(Novit. Zool., XIV, p. 62) and named *hellmayri* by Cory in 1916 (*loc. cit.*), being distinguished by the dark centers of the feathers on head and back. Hellmayr in 1907 noted a male from Chuchurras as nearly like the males of *heterogynus* which he described as darker than male *schistaceus;* in 1924 (Field Mus. Nat. Hist. Publ., Zool. Ser., XIII, pt. 3, p. 87) he assigned this bird to *hellmayri.* I collected two males of *hellmayri* at Puerto Bermúdez, not far from Chuchurras, which I discussed in 1930 (Field Mus. Nat. Hist. Publ., Zool. Ser., XVII, p. 322).

The present collection has in it birds from the upper Ucayali (Santa Rosa and Lagarto), the middle Marañón (Pomará), and from the Río Seco and Río Negro, west of Moyobamba, near Rioja (virtual topotypes of *hellmayri*); also a single female from Perené (a virtual topotype of *dubius*). It is impossible to divide this series satisfactorily. Most of the males are good intermediates between *schistaceus* and *capitalis.* The Pomará specimens are nearer *capitalis* and are darker than the average of the upper Ucayali birds which, in turn, are darker than Bolivian males of *schistaceus.* A male from the Río Seco, west of Moyobamba, which must represent *hellmayri* is nearer to typical *schistaceus* than any other male of the series, being relatively light gray above with no blackish centers on the feathers. Another Río Seco male, not quite adult, has some dusky centers, and a third male, also not quite adult, from a little farther west, on the Río Negro, has more extensive blackish centers, though they are much less marked than in the Pomará skins.

Three females from this same region, two from Río Seco and one from Río Negro, are very like the upper Ucayali females although two of them are rather worn and faded and might be thought too pale to match the others well. The third female (from Río Seco) is in fresh plumage though the tail is still in molt; it is slightly less warm brown on the back than the Chanchamayo female but matches some upper Ucayali skins well, while other upper Ucayali birds match the Chanchamayo bird equally well.

The upper Ucayali males are variable. Most of them have noticeable blackish subterminal areas on head and back but an occasional skin is not so marked. The white on the tip of the tail is of variable width but not entirely absent in any of the skins before me.

All these facts being considered, therefore, I believe that an intermediate form can be recognized ranging through the Tropical Zone of Perú from the Chanchamayo Valley, the upper Ucayali, and the middle Marañón Valley west of the Huallaga. This form must be called *dubius* which antedates *hellmayri.* It may be characterized by the darker gray

coloration of the males, with blackish centers to the feathers of the top of the head and back, though these features sometimes may be obsolete. The females are warmer brown on the back than those of *schistaceus* but not so deep as in *capitalis*, and the rufous color of the crown is similarly intermediate; the under parts are lighter than in *capitalis* but not so dull as in *schistaceus* though there is not always a definite distinction to be found in all examples.

Where this form crosses the Huallaga is not known at present. There is a specimen in the Vienna Museum collected by Poeppig in the "Province of Maynas" which Hellmayr (1907) refers to the form afterwards named *hellmayri*. It probably came from the left bank of the Huallaga, but the exact locality is not known. A Samiria skin is referred to *capitalis* which is in accordance with the occurrence of *capitalis* on the lower Ucayali, discussed below.

All the northern records thus possible to place definitely are from west of the Huallaga while on the left bank of the Ucayali, where the distance from the Huallaga is not great, *capitalis* is found, almost certainly extending across to the right bank of the Huallaga though not yet collected there. Similarly it is not known how far up the Ucayali *capitalis* extends. Consequently it is impossible now to state whether the portions of the range of *dubius* on the upper Ucayali and the lower Huallaga are connected or separated by a projection of the range of *capitalis*.

A female from Zamora, Ecuador, is more advanced toward *capitalis* than the Pomará skins, and might be considered as a slightly pale example of that form if it were not for a male from the same locality which has less black on the head and back than the Pomará males of *dubius*. Since both these birds are undoubtedly intermediate between *schistaceus* and *capitalis* they may be left in *dubius*, having been recorded by Chapman (Bull. Amer. Mus. Nat. Hist., LV, p. 383, 1926) under the name *hellmayri*.

Peruvian records are from Yurimaguas, Chayavitas, "Maynas," and the localities given in the subjoined list of specimens.

Thamnophilus schistaceus capitalis Sclater

Thamnophilus capitalis Sclater, 1858, P. Z. S., London, XXVI, pp. 65, 214—Río Napo, e. Ecuador; ♂; ♀; cotypes in British Mus.

This subspecies is well-marked in typical examples though it intergrades with *dubius* so pronouncedly that certain specimens are difficult to distinguish. Contrary to previous belief, this form crosses the Amazon

to the south bank and ascends the Ucayali at least on the left bank and as far as Sarayacu. Farther up the Ucayali occurs *T. s. dubius* though the point of separation has not yet been determined.

The Sarayacu birds are just as strongly marked as Río Napo skins. Among the males, one from Sarayacu, one from the upper Napo (below San José) in Ecuador, and two from Puerto Indiana at the mouth of the Napo in Perú show some grayish edges on the top of the head; the remainder have the crown and occiput purer black.

The eastward extension of the range of this form can not be fixed with precision from published records. North of the Amazon it has been found from Iquitos to Loretoyacu; south of the Amazon, only at Sarayacu and Samiria. On the Napo it ranges far upstream to Archidona, and, somewhere between this region and Zamora, intergrades with *dubius*.

SPECIMENS EXAMINED

T. s. inornatus.—BRAZIL: Rio Tocantins, Baião, 1 ♀; Rio Xingú (right bank), Tapará, 1 ♂, 4 ♀; Porto do Moz, 2 ♀; Villarinho do Monte, 1 ♂; Rio Xingú (left bank), Victoria, 1 ♂, 1 ♀; Rio Tapajoz (right bank), Aramanay, 4 ♂, 1 ♀; Caxiricatuba, 1 ♂, 2 ♀; Tauarý, 2 ♂; Rio Tapajoz (left bank), Igarapé Brabo, 5 ♂, 4 ♀; Rio Amazonas (south bank), Villa Bella Imperatríz, 2 ♂, 3 ♀; Rio Madeira (right bank), Borba, 1 ♂, 2 ♀; Igarapé Auará, 3 ♂, 5 ♀.

T. s. schistaceus.—BRAZIL: Barão Melgaço, Matto Grosso, 1 ♀; Porto Velho, Rio Madeira, 1 ♀[1]. BOLIVIA: Río Espíritu Santo, 2 ♂, 2 ♀, 2 ♂[1], 1 ♀[1]; Todos Santos, 1 ♂, 3 ♀; Mission San Antonio, Río Chimoré, 7 ♂, 6 ♀. PERÚ: Astillero, 2 ♂, 1 ♀; Río Tavara, 1 ♂, 2 ♀.

T. s. dubius.—PERÚ: Perené, Chanchamayo, 1 ♀; Lagarto, upper Ucayali, 5 ♂, 5 ♀; Santa Rosa, upper Ucayali, 5 ♂, 1 ♀; Puerto Bermúdez, Río Pichis, 2 ♂[1]; Moyobamba, 1 ♀[1]; Río Seco, west of Moyobamba, 2 ♂, 2 ♀; Río Negro, west of Moyobamba, 1 ♂, 1 ♀; Rioja, 1 ♂[1] (type of *Dysithamnus schistaceus hellmayri* Cory); Pomará, Río Marañón, 5 ♂. ECUADOR: Zamora, 1 ♂, 1 ♀.

T. s. capitalis.—ECUADOR: Río Suno, above Avila, 2 ♂, 3 ♀; lower Río Suno, 3 ♂; below San José, 3 ♂, 2 ♀; mouth of Río Curaray, 3 ♂, 4 ♀; mouth of Lagarto Cocha, 2 ♂. COLOMBIA: Florencia, 1 ♂; La Morelia, 1 ♂, 2 ♀. PERÚ: Puerto Indiana, 4 ♂, 4 ♀; Anayacu, 1 ♀; Iquitos, 2 ♂[1]; Sarayacu, Río Ucayali, 7 ♂, 2 ♀.

T. s. heterogynus.—BRAZIL: Rio Madeira (left bank), Rosarinho, 14 ♂, 11 ♀; Santo Antonio de Guajará, 4 ♂, 3 ♀.

Thamnophilus murinus canipennis Todd

Thamnophilus murinus canipennis TODD, 1927 (December 2), Proc. Biol. Soc. Wash., XL, p. 153—Tonantins, Rio Solimoës, Brazil; ♂; Carnegie Mus.

A series of birds from eastern and northeastern Perú has been compared with topotypical examples of *canipennis* kindly loaned by Mr.

[1]Specimens in Field Museum of Natural History, Chicago.

Todd. From this examination it appears that while the Peruvian birds are at one extreme of the limits of individual variation and topotypical examples at the other end, where they approach certain equally extreme examples of *murinus*, there is no good line where *canipennis* may be subdivided.

Thus, females from Tonantins are inclined to be dark on the upper parts, with the top of the head sometimes very rufous, the outer surface of the wings rufous brown, and the back moderately warm brown. Females from São Paulo de Olivença, on the south bank of the Amazon are similar, and a single female from Teffé the same, but of a darker hue. A female from Puerto Indiana, at the mouth of the Napo, is within the range of variation of these other birds.

An Orosa female, from the south bank of the Amazon below the mouth of the Ucayali is lighter above than most of these others, less warmly brown (with more of an olivaceous tone) on the back and wings, and paler on the crown, but it is like one Tonantins female in these respects though the latter is paler below (being like some of the dark-backed Tonantins birds in this particular). Of two females from Santa Rosa, upper Ucayali, one is a little more olivaceous on the back and wings, and the other a little less, than the Orosa bird, and the crown is correspondingly lighter in one and darker in the other.

The Peruvian males from all localities have the wings more purely gray than the males from Tonantins, São Paulo de Olivença, and the Rio Purús, all of which have a slight olivaceous tone. However, a Teffé male is hardly different from Peruvian males, perhaps a little paler, in which it is followed by three males from the left bank of the Rio Madeira two of which show a slight brownish suffusion on the wings. The Teffé male has only obsolete white tips on the upper wing-coverts, following the female in this respect, but the character is variable in Peruvian males as I have indicated. The Rio Madeira males have an unusual amount of white on the coverts. No females known from the Rio Madeira.

There may be some constant differences to be found in Rio Madeiran birds but without females I believe it inadvisable to attempt a segregation and refer the specimens to *canipennis* for the present.

Records from Perú not included in the specimens listed below are from Jeberos, Yurimaguas, Chamicuros, and Chuchurras.

In passing, it may be well to note that *T. m. cayennensis*, for a comparative series of which I am indebted to Mr. Todd, appears to range southward to the north bank of the Amazon at Faro, Brazil.

Faro specimens are not perfectly typical of this excellent form, but show some approach toward *murinus* of Manaos though they are distinctly closer to *cayennensis*. Incidentally, according to our series of *murinus*, the females of *cayennensis* are as readily distinguishable from those of *murinus* as are the males, though on somewhat different characters. Whereas the males of *cayennensis* have the wings brighter and more rufous, the females have both wings and tail lighter but slightly less rufous than in *murinus* females (Cinnamon Brown[1] x light Brussels Brown instead of Brussels Brown x Argus Brown); furthermore the belly is more broadly white and the sides of the head are distinctly grayer and less ochraceous.

T. m. murinus ranges up the Rio Negro on both banks and across to the upper Orinoco in Venezuela, thence across Venezuela eastward into British and Dutch Guiana. The British Guianan males tend to be slightly darker than the Rio Negro examples and the females also average darker and a little grayer above and below, but there are some specimens that are indistinguishable and those from the vicinity of the upper Orinoco range between both extremes. The British Guianan specimens, in certain respects, represent an approach toward *cayennensis* with the greater resemblance to *murinus*. I doubt that they are entitled to separation.

A specimen from the Río Uaupés, opposite Tahuapunto, extends the known range of *murinus* into Colombia.

Specimens Examined

T. m. cayennensis.—French Guiana: Cayenne, 1 ♀; Tamanoir, 4 ♂[2], 3 ♀[2]; Pied Saut, 1 ♀[2]. Brazil: Faro, 15 ♂, 4 ♀.

T. m. murinus.—Brazil: Rio Negro, Manaos, 3 ♂, 1 ♀; Igarapé Cacao Pereira, 1 ♂, 1 ♀; Santa Maria, 1 ♂, 2 ♀; Santa Isabel, 1 ♀; Yucabí, 1 ♀; Yavanari, 1 ♂, 1 ♀; San Gabriel, 3 ♂; Tabocal, 2 ♂; Tatú, ? ♂, 5 ♀; Marabitanas, 2 ♂; Rio Uaupés (both banks), 5 ♂, 4 ♀. Colombia: Río Uaupés, opposite Tahuapunto, Brazil, 1 ♂. Venezuela: (vicinity of Mt. Duida, up to 3000 feet) 48 ♂, 49 ♀; Suapure, 2 ♂, 2 ♀; La Unión, 3 ♂. British Guiana: Potaro Landing, 7 ♂, 4 ♀; Tumatumari, 3 ♂, 1 ♀; Kamakusa, 3 ♂, 4 ♀; Merumé Mts., 1 ♂; Rockstone, Essequibo R., 1 ♂; Wismar, Demerara R., 1 ♂. Dutch Guiana: Paraku, Saramacca, 1 ♂; Lelydorp, 1 ♀.

T. m. canipennis.—Brazil: Tonantins, 1 ♂[2], 4 ♀[2]; São Paulo de Olivença, 1 ♂[2], 3 ♀[2]; Hyutanahan, Rio Purús, 1 ♂[2]; Teffé, 1 ♂, 1 ♀; Rio Madeira (left bank), Rosarinho, 2 ♂; Santo Antonio de Guajará, 1 ♂. Perú: Santa Rosa, upper Ucayali, 1 ♂, 2 ♀ (incl. type); Lagarto, 2 ♂; mouth of Río Urubamba, 1 ♂;

[1]Names of color when capitalized indicate direct comparison with Ridgway's 'Color Standards and Color Nomenclature.'

[2]Specimens in Carnegie Museum, Pittsburgh.

Sarayacu, 1 ♂; Orosa, Río Amazonas, 2 ♂, 1 ♀; Puerto Indiana, 2 ♂, 1 ♀; Anayacu, 1 ♂. ECUADOR: mouth of Río Curaray, 1 ♂.

Thamnophilus aroyae (Hellmayr)

Dysithamnus aroyae HELLMAYR, 1914 (February 27), XIV, p. 52—La Aroya (=La Oroya), Inambari Valley, 3000 ft., Marcapata District, se. Peru; ♂; Rothschild Collection, American Mus. Nat. Hist.

Thamnophilus oroyae, CARRIKER, 1932, Proc. Acad. Nat. Sci. Phil., LXXXIII, p. 464—descr. ♀.

A male from the Río Tavara adds another locality to the records of this little-known bird, albeit the range is not materially altered thereby.

This specimen, like a Bolivian example already noted by Hellmayr and one of two males recorded by Carriker, has a white spot on the outer web of the outermost rectrix about one-third basad from the tip. This same mark is present on certain specimens of *T. nigrocinereus nigrocinereus* from the Rio Tocantins, Brazil, but not on others from the same locality, and is also on a specimen of *T. n. huberi* from Santarem. Both the Peruvian and the Bolivian males have a decidedly conspicuous, though not very large, silky white area concealed on the interscapulars, being found on the inner webs of various feathers where it is bounded anteriorly and posteriorly by a narrow and ill-defined blackish area, best marked in the Peruvian skin. This feature is not mentioned as existing in the type.

A female from the Yungas of Cochabamba, Bolivia, agrees fairly well with Carriker's description of topotypical females, but the back is more olivaceous than seal brown and has a small, concealed patch of white in the interscapular region; the greater and middle upper wing-coverts are finely tipped with white, preceded by an ill-defined subterminal mark of blackish; the tail has white on the tips of all the rectrices except the middle pair. Whether these characters would remain constant in a series has yet to be demonstrated.

The affinities of this bird are not clearly discernible, but the position between *murinus* and *punctatus*, where it has been placed by Hellmayr, seems best to fit the characters of the species.

SPECIMENS EXAMINED

T. aroyae.—PERÚ: Río Tavara, 1 ♂. BOLIVIA: Yungas, Cochabamba, 3600 feet, 1 ♂, 1 ♀.

Thamnophilus punctatus albiventris Taczanowski

Thamnophilus naevius-albiventris TACZANOWSKI, 1884, 'Orn. Pér.,' II, p. 9—Guajango, Perú; ♂; Warsaw Mus.

Thamnophilus punctatus leucogaster HELLMAYR, 1924, Field Mus. Nat. Hist. Publ., Zool. Ser., XIII, pt. 3, p. 94—new name for *T. n. albiventris* Taczanowski.

This form is the most easily distinguishable of the various conspecies of *punctatus*. Its nearest affinity is not its geographically nearest neighbor, *atrinucha*, but rather the southern Matto Grosso form, *sticturus*, from which it is widely separated by nearly the whole of Perú and most of Bolivia. In fact, the line of association, as shown by present distribution, proceeds around the entire northern and northeastern portions of South America (with an apparent hiatus between the Cauca Valley and the Lake Maracaibo region of Venezuela or between the Cauca and the upper Río Meta of Colombia), and thence inland southwestward to Matto Grosso, leaving *albiventris* and *sticturus* at opposite ends of the long arc.

The bird from the upper Ucayali described by Stolzmann as *Thamnophilus punctatus sclateri* is *T. a. amazonicus*. A discussion of this misidentified form is given under *amazonicus* (pp. 10–14) where also the differences between *amazonicus* and *punctatus* are treated in detail.

Since *Thamnophilus naevius-albiventris* Taczanowski is not invalidated by the earlier *Thamnophilus albiventer* Spix [= *Taraba major stagurus* (Spix)] according to the recommendations of the 'International Rules of Zoological Nomenclature' (Article 36), I have restored Taczanowski's name. Fortunately, *albiventer* Spix is a synonym of a species which belongs in another genus, and there will be no cause for confusion in the similarity of names.

Peruvian records of *albiventris* are from Guajango, the type locality, and Perico, from which latter place additional specimens are now at hand. The records from the upper Ucayali refer to the birds which were afterwards named *sclateri* by Stolzmann as mentioned above.

The problem of attempting to establish the identity of *T. p. sclateri* has led to a study of various forms of *punctatus* not found in Perú. In the course of this study, several facts of interest have been disclosed which should be placed on record, though a number of points will require future examination of some additional material not now available.

In the first place, there is a form of *punctatus* living on the south bank of the Amazon between the right bank of the Xingú and the right bank of the Tocantins which is quite distinct from *T. p. saturatus* of both banks of the lower Tapajoz. The males are not strikingly different from those of *saturatus*, being decidedly more grayish below than males of *pelzelni*, but the back may average more extensively black, the forehead more broadly gray, the under parts and the sides of the head slightly paler gray, the outer edge of the outer margins of the inner remiges more often gray than blackish, and with a less strongly blackish band at the

basal margin of the white tips of the rectrices, though there is no sharp definition in these respects. On the other hand, the females are immediately distinguishable by having the tail in ventral aspect decidedly more rufous than blackish, with a distinct blackish line bordering the basal edge of the white tip, by less sooty upper wing-coverts, and by somewhat more grayish sides of the head. In general they resemble the females of typical *punctatus* except that the back is much brighter. The darker coloration of both sexes prevents confusion with *pelzelni* and *sticturus*.

On the middle stretches of the Rio Madeira no form of *punctatus* has been collected and recorded although the region has been explored. This leaves a hiatus between the range of *saturatus* on the lower Tapajoz and the region of the upper Madeira and its affluents, to which *saturatus* might have been expected to extend. If, as now seems to be the case, the northern Matto Grosso bird is to be associated with the Xingú and Tocantins examples, this hiatus represents an actual gap in the distribution of the species, though one form or the other may be found there at some future time.

In the light of these observations, the question of the identity of *T. stictocephalus* Pelzeln has again come to the front. The type of this form was supposed by Hellmayr (Field Mus. Nat. Hist. Publ., Zool. Ser., XIII, pt. 3, p. 96, footnote *a*, 1924) to be an individual variant of *T. p. sticturus* of southern Matto Grosso, southeastern Bolivia, and northern Paraguay, although it was noted as being decidedly darker gray beneath. More recently Dr. Hellmayr has written me that the type may well belong either to *saturatus* or to the form I described to him as occupying the Tocantins and Xingú rivers, but that the characters distinguishing these two forms could not be made out in this skin owing (in part, at least) to its poor condition. Since the males can not be distinguished in every case, the exact allocation of the type may depend more on the cumulative evidence of topotypes than on the type itself, and this determination must await further collections at the type locality, São Vicente.

Unfortunately, São Vicente is only a few miles north of Chapada, hardly farther away (though possibly in a different direction) than Abrilongo, which is the type locality of *pelzelni* to which the Chapada birds also belong. From Chapada, *pelzelni* ranges eastward along the plateau to the state of Goyaz before running northward, still on the tableland (except well to the north), to Maranhão. Both São Vicente and Chapada are on or near tributaries of the Guaporé in the Rio Madeiran

drainage though São Vicente, being nearer to the Amazonian forested region (if only by a few miles), is just that much more likely to have an Amazonian form endemic. That such a possibility exists is shown by the situation a few miles to the southward of Chapada where, on another affluent of the Guaporé, though in relatively close proximity to certain tributaries of the Rio Paraguay which flows southward, Engenho do Capitão Gama stands as the type locality for still another subspecies, *T. p. sticturus*, being the most northern locality for this form just as São Vicente must be, at this longitude, the most southern point of distribution for *stictocephalus*, with Chapada and its highland habitat at the western end of a finger-like projection of the range of *pelzelni* separating the other two.

The nearest relatives of the São Vicente bird, *stictocephalus*, may well be looked for, then, on the north, west, or east of this locality, since *pelzelni* occurs on the south. On the west no form of *punctatus* seems to occur. To the northward and northeastward lie the head-waters of various Amazonian streams such as the Xingú, Tapajoz, and certain affluents of the Madeira like the Rio Roosevelt. Two skins are at hand from a branch of the upper Tapajoz and the upper Roosevelt. Of these, a male from "Camp 2," Rio Roosevelt, is either *saturatus* or the Tocantins-Xingú form though not clearly assignable to either, being in imperfect condition. The other skin, a female from Utiarity, Rio Papagaio, is very definitely like the Tocantins and Xingú females in contrast to females of *saturatus*. The evidence at hand thus points rather clearly to the conclusion that these two birds are *stictocephalus* and that the range extends north and east across the upper waters of the Amazonian streams to the Xingú and Tapajoz and down these latter rivers to their mouths.

If later collections show that the Utiarity female just mentioned is not typical of the birds of this region and that the preponderating resemblance is rather to the birds of the lower Tapajoz, it may be necessary to place the name *saturatus* as a synonym of *stictocephalus* and name the Xingú-Tocantins form. On the other hand, more material from São Vicente may indicate some other procedure. In the light of material now at hand, it appears to be desirable to resurrect the name *stictocephalus* for the Xingú-Tocantins birds.

In western Bahia, *pelzelni* and the coastal form *ambiguus* intergrade and there are various specimens at hand which are not clearly assignable to either form together with others which, as a series, show a range of individual variation covering both extremes. I have referred these

examples to *pelzelni* pending Mrs. Naumburg's studies of the birds of that region.

The series of *punctatus* from north of the Amazon up to the Guianas and eastern Venezuela is rather variable but does not support the separation of a subspecies, *cinereinucha* Pelzeln, as described from Manaos. Twelve males from the neighborhood of Manaos are not distinguishable from Cayenne skins. Thirteen females from the same region are darker and average somewhat duller than two Cayenne females though they are not as grayish in tone as four British Guiana specimens. Five females from Faro are more like the Cayenne than the British Guiana birds, being brighter than Manaos examples. A single female from the Rio Jarý is again like the British Guiana series and six females from eastern Venezuela show the same resemblance.

Specimens Examined

T. d. punctatus.—French Guiana: Cayenne, 2 ♂, 2 ♀; Mana, 1 ♂. British Guiana: Demerara River, 2 ♂, 1 ♀; Essequibo River, 1 ♂; Wismar, 3 ♀. Dutch Guiana: Paramaribo, 1 ♂. Venezuela: Paulo, Mt. Roraima, 2 ♂, 2 ♀; Arabupu, 2 ♂, 2 ♀; Cristóbal Colón, Paria Peninsula, 7 ♂, 4 ♀; La Cascabel, Río San Feliz, 2 ♂; Maripa, Caura, 2 ♀. Brazil: Rio Negro, Campos Salles, Manaos, 4 ♂, 7 ♀; Hacienda Rio Negro, 5 ♂, 3 ♀; Igarapé Cacao Pereira, 3 ♂, 3 ♀; Obidos, 1 ♂; Faro, Rio Jamundá, 11 ♂, 5 ♀; Santo Antonio da Cachoeira, Rio Jarý, 1 ♀.

T. p. saturatus.—Brazil: Rio Tapajoz (left bank), Igarapé Brabo, 5 ♂, 3 ♀; Igarapé Amorín, 1 ♀; (right bank), Aramanay, 4 ♂, 8 ♀; Santarem, 7 ♂, 2 ♀.

T. p. stictocephalus.—Brazil: Rio Roosevelt, 1 ♂; Rio Papagaio, Utiarity, 1 ♀; Rio Xingú (right bank), Porto do Moz, 4 ♂; Villarinho do Monte, 4 ♂, 1 ♀; Tapará, 2 ♀; Rio Tocantins (left bank), Cametá, 1 ♂, 1 ♀; (left bank), Mocajuba, 2 ♂; Baião, 3 ♂, 4 ♀.

T. p. pelzelni[1].—Brazil: Matto Grosso, Abrilongo, 1 ♂ (type); Chapada, 13 ♂, 15 ♀; São Paulo, Itapura, 1 ♂, 1 ♀; Bahia, Bôa Nova, 4 ♀; Sincorá, 2 ♂, 1 ♀, Tamburý, 1 ♂; Jaquaquará, 3 ♂; Orobo (?=Urubú), 1 ♂; Itirussú, 1 ♂; Iracema, 1 ♂; Morro de Chapeu, 2 ♂, 1 ♀; Santa Ritta, 7 ♂, 4 ♀; Piauhy, Corrente, 2 ♂, 1 ♀, 1 ♀?; Parnagua, 1 ♂, Gilbues, 1 ♂, 1 ♀; Santa Maria, Urussuhy, 1 ♀?; Therezina, 1 ♂, 2 ♀; Floriano, 1 ♂, 1 ♀; Ceará, Viçosa, 2 ♂; São Pedro de Ceriry, 1 ♂, 1 ♀; Maranhão, As Mangueras, 5 ♂, 4 ♀.

T. p. ambiguus.—Brazil: (no other locality), 2 ♂, 2 ♀ (cotypes of *nigricans* Wied); Bahia, 12 ♂, 9 ♀; Verruga, Rio Pardo, 1 ♂, 1 ♀; Rio de Janeiro, 1 ♂; La Raiz, foot of Organ Mts., 1 ♀.

T. p. sticturus.—Brazil: Belvedere do Urucum, Matto Grosso, 2 ♂; Urucum near Corumbá, 5 ♂, 4 ♀. Bolivia: Vermejo, Prov. Santa Cruz, 2 ♂, 1 ♀.

T. p. interpositus.—Colombia: Barrigon, Río Meta, 1 ♂, 1 ♀; "Bogotá," 1 ♂, 1 ♀.

T. p. subcinereus.—Colombia: (Santa Marta district), 7 ♂, 5 ♀; "Bogotá," 1 ♂, 1 ♀.

[1]Some of these birds may belong to *ambiguus*.

T. p. atrinucha.—COSTA RICA: 1 ♂, 1 ♀. NICARAGUA: 1 ♂. PANAMÁ: 23 ♂, 14 ♀. COLOMBIA: (west coast and Cauca Valley) 18 ♂, 21 ♀. ECUADOR: (western regions), 18 ♂, 11 ♀.

T. p. albiventris.—PERÚ: Sauces, Río Chamaya, 2 ♂, 1 ♀; Cabico, Río Chamaya, 1 ♂; Perico, 3 ♂, 4 ♀; Jaen, 2 ♂; San Ignacio, 2 ♂, 1 ♀; Huarandosa, 2 ♂, 1 ♀.

Thamnophilus amazonicus amazonicus Sclater

Thamnophilus amazonicus SCLATER, 1858, P. Z. S. London, XXVI, p. 214, Pl. CXXXIX, figs. 1, 2—Upper Amazons (Bates) = Rio Javari; ♂, ♀; cotypes in British Mus.

Thamnophilus punctatus sclateri STOLZMANN, 1926 (December 31), Ann. Zool. Mus. Polon. Hist. Nat., V (4), p. 215—upper Ucayali; ♂; Warsaw Mus.

A male from Santa Rosa, upper Ucayali, and a female from Sarayacu rather certainly represent typical *amazonicus*, described from the Javari a little east of the Ucayali. Two males and two females from Anayacu on the north bank of the Amazon belong to the same form. The males show some variation in the amount of black on the upper surface. Both extremes are from Anayacu and the Santa Rosa bird is intermediate. The paler Anayacu bird is very like certain males of *T. a. cinereiceps* from the upper Rio Negro, Brazil. The females are more uniform, though one Anayacu bird is darker above than the others and the Sarayacu skin has the belly slightly deeper in color, more like the breast, whereas in the two Anayacu skins there is a slight differentiation between the breast and the paler belly. This character also suggests *T. a. cinereiceps.*

There has been strong presumptive evidence that Stolzmann (*loc. cit.*) redescribed *amazonicus* as *Thamnophilus punctatus sclateri.* So far as available collections show, no form of *punctatus* occurs on the Ucayali nor, in fact, between the Rio Madeira and the upper Marañón, while *amazonicus* does occupy this exact region. The diagnostic characters given for *sclateri* are quite applicable to *amazonicus* which apparently was not considered by Stolzmann. Unfortunately, the exact differences between the forms of *punctatus* and those of *amazonicus* have never been properly understood and the superficial resemblances are so striking and numerous as to cause a great deal of confusion though the females are instantly distinguishable.

Partially with a view to aid in the correct assignment of *sclateri* and partially to distinguish between the males of *punctatus* and *amazonicus* subspecies where they occur together from the Guianas to the Amazonian region east of the Rio Madeira, I have studied a long series of

males of the different forms of both species where they do not occur together, in order to discover some differentiating characters of relative constancy. Two such characters have come to light with two more which are useful when taken in conjunction with the others. These characters are all slight ones which appear, at first glance, too small to be of service, but with them I have had no difficulty in assigning any of the several hundred males of the two species that I have examined and I am convinced that they are really diagnostic, in spite of their almost microscopic nature. To a certain extent they are discernible also in the females, which adds to their validity. The characters are as follows. In males of *amazonicus* and its conspecies, the feathers of the superciliary region, especially above the auriculars, have distinctly blackish bases, rather sharply defined from the gray tips; in *punctatus* and its allies, the bases of these feathers are gray, possibly duller than the tips but not distinctly blackish. There is sometimes a subterminal blackish area on these feathers which in most subspecies of *punctatus* never reaches a development great enough to cause any confusion, but in *T. p. atrinucha* of northwestern Colombia it is frequently very strongly developed, occasionally reaching the bases of the feathers. In such extreme cases the feathers in question are usually more than basally black, being almost entirely black with a terminal gray margin. In any event, since the range of *atrinucha* does not conflict with that of any form of *amazonicus*, there is little danger of confusion.

In *amazonicus*, the under primary-coverts may be pure white but, if marked with dusky, such markings are central, either as a shaft line or a lunule crossing the shaft, or, if the feather is largely dark, both margins are whitish; in *punctatus* these coverts are less frequently without dark markings and where these occur they are on the inner margins of the feathers, sometimes occupying the entire inner web, rarely crossing the shaft to the outer web and rarely appearing only on the outer and inner margins, leaving the central area entirely pale.

In *amazonicus* the dark bases of the under tail-coverts are inclined to be less sharply defined from the median area which is relatively darker than in *punctatus*, and the whitish tips, in turn, are not so sharply defined since the subterminal dusky line or spot is relatively duller; in *punctatus* the reverse is the rule, but there is much variation.

In *amazonicus* the gray of the under parts is darker; in *punctatus* lighter. Extremes are rather easily distinguished but the line of demarcation is not as wide as the band of individual variation in the same subspecies.

With these differences as the only tangible clues to distinguish the males of the two species it would not be surprising if a single male specimen, such as the type of "*sclateri*," were referred to the wrong species. The only characters given by Stolzmann are the black dorsum and longer white tips on the rectrices as compared with *T. p. punctatus*, and the black dorsum and the dark under parts as compared with *T. p. ambiguus*. The black dorsum is a variable character though of more frequent and more extended development in the *amazonicus* group, while the darker under parts are also characteristic of *amazonicus*. The white tips on the rectrices are also of somewhat greater extent in *amazonicus* than in *punctatus*, as described for *sclateri*. The description of "*sclateri*" thus is a good diagnosis of *T. a. amazonicus* to the extent of the given characters.

Furthermore, the type has remained unique and the type locality is in the range of *amazonicus* but far removed from that of any other form of *punctatus*. Without any examination of the type, it would be a logical conclusion that an error had been made in placing the bird in *punctatus*.

Through the kindness of Dr. Janusz Domaniewski of the Polish Museum of Natural History, I have been enabled to examine the type of "*sclateri*," which substantiates the conclusions reached by the above analysis. It is an unquestioned *amazonicus*, agreeing with the American Museum series from the Ucayali and showing all the details which distinguish males of *amazonicus* from those of *punctatus*.

The type gives evidence of being the specimen recorded by Sclater and Salvin in 1866 (P. Z. S. London, p. 185) as *T. naevius* and later assigned by Taczanowski to *albiventris*.

Peruvian records other than those in the subjoined list of specimens are from Chamicuros and Loretoyacu. A series of over thirty specimens is at hand from the right bank of the Rio Madeira, the Gy-Paraná, western Matto Grosso, and the "Yungas" of Bolivia (18° S. = near Cochabamba). These birds are not certainly distinguishable from the Peruvian skins of *amazonicus*. Perhaps the average extent of black on the upper surface of the males is greater, but without an equal number of males from the neighborhood of the Javari, the value of this distinction can not be determined. The females are equally close. An occasional specimen, as in the Peruvian series, shows an observable, though not sharp, distinction between the tones of coloration on the breast and belly, suggesting *T. a. cinereiceps*.

Of three skins from Villa Bella Imperatríz, between the Madeira

and the Tapajoz, the two males appear to be inseparable from Rio Madeiran skins. The single female is anomalous, being as pale in general color as *paraensis* females though without the rufous base of the tail which characterizes that form. Still farther east, on the right bank of the Tapajoz, the birds appear to be different, not in the direction of *paraensis* but the opposite. They deserve distinction and may be recognized as follows.

Thamnophilus amazonicus obscurus, new subspecies

TYPE from Tauarý, Rio Tapajoz (right bank), Brazil. No. 286,386, American Museum of Natural History. Adult female collected April 9, 1931, by A. M. Olalla.

DIAGNOSIS.—Nearest to *T. a. amazonicus* but somewhat larger; darker on the upper surface with more subterminal black on the mantle (difference especially noticeable on sides of back); males sometimes with back and top of head almost entirely black; females with head above darker rufous than in *amazonicus*, and tips of mantle-feathers darker and duller brown; median rectrices of both sexes usually without pale tips.

RANGE.—South bank of the Rio Amazonas in Brazil, between the Rio Tapajoz and the Rio Xingú; possibly east to the left bank of the lower Tocantins.

DESCRIPTION OF TYPE.—Top of head dark Sanford's Brown, with this color extending over the hind neck; back tipped with Brussels Brown x Raw Umber, with broad, black subterminal areas and a large concealed patch of silky white basad of the black; rump dark Brownish Olive; upper tail-coverts Mars Brown. Sides of head, including a narrow superciliary line, brighter than the crown, Sanford's Brown x Burnt Sienna; lores a little paler; chin, throat and breast Xanthine Orange x Amber Brown, belly lighter; flanks darker and duller; under tail-coverts like the breast. Wings blackish; primaries and secondaries margined exteriorly (except at base and tip) with light Antique Brown and with a broader white spot on the outer margins of secondaries near the tips; tertials with outer margins broadly and sharply white; greater and median upper wing-coverts black with broadly white tips largely confined to the outer webs; longer lesser coverts with pale tips sometimes whitish; rest of lesser coverts tipped with the color of the mantle; inner scapulars like the mantle, outer ones like the tertials; primary-coverts black; alula black with narrow white outer margin; under wing-coverts deep Orange-Buff; inner margins of remiges (except at tip and except on outer primary) Light Buff. Tail black with faint traces of Mars Brown at very base of outer webs; tips of all but middle rectrices white increasing in extent laterad; outermost rectrices also with a white spot on outer web two-fifths of the way from tip to base, reaching shaft. Maxilla blackish; mandible a little paler; feet dull slaty. Wing, 74 mm.; tail, 62; exposed culmen, 15; culmen from base, 19; tarsus, 21.

REMARKS.—Males with top of head black except at tips of forehead feathers which are gray (sometimes only laterally); mantle medially tipped broadly with black, laterally with dark gray (sometimes very narrowly and inconspicuously); an extensive patch of silky white concealed on median portion of feathers; rump tipped with black or sooty

gray; upper tail-coverts largely black with white tips. Lores and superciliary stripe dark gray, the superciliary stripe with well-defined black bases; the auriculars sooty; chin, throat, malar region, breast, and sides light Slate-Gray; belly somewhat lighter gray with traces of whitish tips; anterior under tail-coverts light Slate-Gray with varyingly distinct cross-bands of darker gray or blackish, and with somewhat whitish tips; longer coverts darker gray with cross-bands more blackish and pale tips more strongly whitish; bases of under tail-coverts sooty, not very sharply defined. Tail black with white markings as in the female. Wings blackish with pale markings on remiges and upper coverts disposed as in the female but all white; under wing-coverts white with a greater or lesser amount of gray or brownish gray markings disposed as shaft-lines or shaft-spots (not marginal as in *T. punctatus* and allies); inner margins of remiges white except at tips and except on outermost primary. Wings, 75–77 mm.; tail, 66–68; exposed culmen, 14.5–16; culmen from base, 19–21; tarsus, 20–23.

An adult male from the right bank of the Xingú agrees with the Tapajoz males. A female from the same region approaches *T. a. paraensis* in having a stronger indication of rufous on the basal portion of the middle rectrices, but it is not so developed as in *paraensis* and the general coloration is as in *obscurus* except that the concealed white on the mantle is reduced in extent and the subterminal black modified to sooty brown. A female from the Tapajoz shows a tendency in this direction, not so strongly developed. Young females from the Tapajoz agree well with the normal adults though the colors are a little duller.

One male from Tauarý is so dark that the whole sides of the head are more blackish than otherwise and there are strong blackish subterminal areas on the breast feathers which form an obscured blackish band connected with the black of the sides of the neck. Above, the lateral interscapulars are only narrowly tipped with gray and the rest of the back and top of the head are entirely black.

One male from the type locality which is practically adult (though there are traces of brown on some of the scapulars) has narrow, gray tips on the median interscapulars and broader tips laterally, but there are heavy black subterminal areas here also; the ventral coloration is paler than in the other Tapajoz birds. Another immature male, from the Xingú, similarly has more gray above than the adult male from the Xingú; the character may thus be of little value in birds that are not fully adult.

A male from Faro, Rio Jamundá, on the north bank of the Amazon,

is small (wing, 69 mm.; tail, 60.5), in agreement with *paraensis*, and probably should be referred to that form; also a male from Kamakusa, British Guiana which, however, is more broadly grayish above than the southern specimens. In the original description of *paraensis*, Todd provisionally refers Guianan examples to this form and I am unable to add anything to his observations in the absence of a quantity of material. The Faro skin marks the only Brazilian record of *paraensis* from the north bank of the Amazon though it is not unexpected in view of the apparent occurrence of this subspecies in the Guianas.

It is interesting to note that in the Olalla collections from the neighborhood of the Tapajoz, the representative forms of *punctatus* and *amazonicus* were not secured at the same localities, though they were so secured on the Tocantins and the Jamundá. Heinrich Snethlage has distinguished the common ecological associations of the two species in eastern Brazil and it is probable that they occupy different niches where they occur near to each other.

I have no hesitation in assigning to *Thamnophilus cinereiceps* a place among the conspecies of *amazonicus*. A long series of *cinereiceps* shows much individual variation. Some of the males have considerable black on the head and back, exceeding that of some typical *amazonicus*. The breadth of white on the upper tail-coverts is variable as is the tone of gray beneath. Similarly, the females do not always have so much contrast between the colors of the breast and belly and sometimes there is no more such distinction than there is in extreme examples of female *amazonicus*. The upper tail-coverts are usually sooty with white tips but sometimes they are warm brown with white tips while fine ochraceous tips are present at the ends of these feathers in an occasional *amazonicus*. The characters that separate males of *amazonicus* subspecies from *punctatus* subspecies are equally noted in *cinereiceps* males and the measurements overlap. The only apparent conflict in range is based on certain specimens of *cinereiceps* supposedly from French Guiana but which Hellmayr (Field Mus. Nat. Hist., Zool. Ser., XIII, pt. 3, p. 98, footnote *a*, 1924) has effectively discounted as being dealers' skins without original labels, and therefore of doubtful geographic origin. *T. a. cinereiceps* ranges from Atures, upper Río Orinoco, Venezuela, south to the Rio Negro, Brazil, and along this stream southeastward at least as far as Santa Isabel on the left bank and Muirapinima on the right bank (which is not far above the mouth of the Negro on the west). This form undoubtedly occurs in Colombia near the Uaupés though there is no specimen actually from within the political boundary. Hellmayr mentions a

skin from 'Bogotá' collections which is referable to *amazonicus*, though I suggest a possibility it may prove to be a dark example of *cinereiceps*.

SPECIMENS EXAMINED

T. a. amazonicus.—PERÚ: Santa Rosa, upper Ucayali, 1 ♂; "Upper Ucayale," 1 ♂[1] (type of *Thamnophilus punctatus sclateri*); Sarayacu, 1 ♀; Anayacu, 2 ♂, 2 ♀. BOLIVIA: Yungas (18° S.), 1 ♀. BRAZIL: Tapirapoan, Matto Grosso, 1 ♀; Engenho do Gama, 1 ♀; Barão Melgaço, 1 ♀; Rio Madeira, Porto Velho, 1 ♂, 1 ♀; Borba, 13 ♂, 9 ♀; Igarapé Auará, 1 ♂, 2 ♀; Rio Amazonas, Villa Bella Imperatríz, 2 ♂, 1 ♀.

T. a. obscurus.—BRAZIL: Rio Tapajoz (right bank), Tauarý, 5 ♂, 7 ♀ (incl. type); Rio Xingú (right bank), Porto do Moz, 2 ♂, 1 ♀.

T. a. paraensis.—BRAZIL: Utinga, 1 ♀; Apehú, 1 ♂; Santa Isabel (east of Pará), 1 ♀; Rio Tocantins, Mocajuba, 2 ♂, 2 ♀; Baião, 1 ♂, 1 ♀; Kelsú (Rosario), Maranhão, 1 ♂; Rio Jamundá, Faro, 1 ♂. BRITISH GUIANA: Kamakusa, 1 ♂.

T. a. cinereiceps.—BRAZIL: Rio Negro, Muirapinima, 7 ♂, 3 ♀; Yavanari, 2 ♂, 2 ♀; Santa Isabel, 1 ♀; Santa Maria, 5 ♂, 2 ♀; Uacará, 1 ♂; Mte. Curycuryari, 4 ♂, 1 ♀; Rio Uaupés (left bank), Tahuapunto, 2 ♂. VENEZUELA (Río Cassiquiare, upper Río Orinoco, and foot of Mt. Duida up to 700 ft., numerous localities), 93 ♂, 73 ♀; Maipures, Río Orinoco, 1 ♀.

Thamnophilus caerulescens melanchrous Sclater and Salvin

Thamnophilus melanchrous SCLATER AND SALVIN, 1876, P. Z. S. London, pp. 16, 18, Pl. III (♂)—Huiro, Urubamba Valley, Perú; cotype in British Mus.

Thamnophilus luctuosus TSCHUDI (*nec.* LICHTENSTEIN), 1844, Arch. Naturg., X (1), p. 278—Perú.

Thamnophilus subandinus-major TACZANOWSKI, 1884, 'Orn. Pér.,' II, p. 7—new name for *Thamnophilus luctuosus* TSCHUDI.

A series of thirty-six specimens from central and southeastern Perú permits an accurate study of the characteristics of typical *melanchrous*, heretofore known from relatively few examples found in various collections.

There are also at hand eight skins from near Chachapoyas representing Taczanowski's *Thamnophilus subandinus*. The variation in true *melanchrous* is considerable but there are some points of average difference which may serve to distinguish the two forms, not all of which have been recognized by authors since Taczanowski first called attention to them in 1882 (P. Z. S. London, p. 29). Thus the males of *melanchrous*, with few exceptions, have the tips of the shorter lesser upper wing-coverts (along the radial margin of the wing) so broadly white that the black bases are nearly or entirely concealed, making a solidly white patch which is followed by three rows of white spots across the wing on

[1]Specimen in Polish Museum of Natural History, Warsaw.

the tips of the longer of the lesser coverts, the median series, and the greater coverts. In *subandinus* the tips of all the upper wing-coverts are white but those of the smaller of the lesser series are narrow like those of the remainder, making the radial margin spotted with white but not solidly white. Several Junín males are like *subandinus* in this respect but by far the larger number can be recognized without difficulty.

The amount of white on the tips of the rectrices is the same in both series. The marginal spot on the outer web of the outer rectrix is sometimes absent in *melanchrous* but sometimes supplemented by a second smaller white marginal marking. This second marking is indicated also in three of the four males of *subandinus* now before me, and also in other males from Chinchao which I refer to the same form. The under wing-coverts are pure white in some Urubamba Valley males, but in others their dusky bases are visible especially toward the metacarpal margin. The birds from southeastern Perú, the Junín region, Chinchao, and northern Perú have this blackish admixture present in varying degree.

The flanks and belly in no case are pure black, having in every example some trace of white, however faint, along the shafts or at the tips of some of the feathers. Young birds and even some adults have a tendency toward grayness in this region with a suggestion of the black and white barring which is characteristic of the Bolivian *aspersiventer*. The extreme of resemblance to *aspersiventer* in this respect is found in the immature males of *subandinus*. One of these from La Lejia, north of Chachapoyas, is as strongly marked on belly and flanks as any Bolivian male, but the under tail-coverts have markings less distinct, being more extensive than the plain white tips of *subandinus* and *melanchrous* adults and less than the full bars of *aspersiventer*.

One adult male of *subandinus* from San Pedro, south of Chachapoyas, has some portion of the outer margins of all the primaries and of nearly all the secondaries white. This is more than is present in any skin of *melanchrous* and is in accord with Taczanowski's description of *subandinus* but, unfortunately, it is not corroborated by the other northern specimens.

The females are far from uniform. Depending somewhat upon age, the breast has a varying amount of buffy suffusion, but it is never clear gray. Similarly the degree of blending between the colors of breast and upper belly is variable and both extremes are found in Urubamba and Junín birds as well as in *subandinus*. The single Santo Domingo female shows a sharper division than any of the others. The back is variably

tinged with olive (the young females may be quite olivaceous brown), possibly more distinctly grayish in *subandinus*. The subterminal parts of the feathers of the lower mantle are varyingly blackish, apparently more extensively so in *subandinus* and sometimes only indistinctly sooty in some true *melanchrous*. Two females of *melanchrous* from Torontoy and San Miguel Bridge, Urubamba Valley, have both black and white concealed in small amount on the mantle as in *aspersiventer*. Both also have pale spots on the upper wing-coverts. The Torontoy female, which is not fully adult, has buffy spots at the tips of the greater coverts which otherwise are somewhat brownish. The female from San Miguel Bridge has the upper wing-coverts blackish with a few pure white dots at the tips of some of the median coverts. Three other females, from San Miguel, Chelpes, and Santo Domingo, have similar white or whitish dots on some of the coverts.

One of the females of *subandinus* from San Pedro has similar small white dots on the coverts but one from La Lejia has more distinct ones on the greater and middle coverts and the alula, and even on the outer scapulars, and suggestions of the same on the lesser coverts. The second female from La Lejia is not fully adult and has the markings even stronger than in the adult from the same locality, though less clearly white. A young bird without sex, apparently a female, from San Pedro, has buffy tips only on the greater coverts and alula. A female from Chinchao, in Field Museum of Natural History, has no markings on the coverts. Carriker records white markings on one of three females from Leimebamba. Possibly there is thus a greater tendency toward such marking in *subandinus* than in typical *melanchrous*.

The outer rectrices are always tipped with white in both *melanchrous* and *subandinus*. Usually the second pair also are so tipped and sometimes the third in adults, while young birds may have this marking carried even farther toward the middle rectrices. The young female of *subandinus* from La Lejia has even a very faint trace of it on the middle pair. A whitish marginal spot on the outer web of the outer rectrices about one-third of the distance back from the tip (similar to the white spot found in this position in most males) is present in the young female of *subandinus* from La Lejia and in the female of *melanchrous* from Santo Domingo. In the latter bird it is probably a sign of approximation toward *aspersiventer* of Bolivia where it is of common occurrence.

The black of the crown is carried a little more strongly over the hind neck in *subandinus* than in *melanchrous*. The wing-lining and belly are a little paler buff; the flanks and under tail-coverts are more decidedly

lighter in color, being Buckthorn Brown (x Raw Sienna) whereas in *melanchrous* they are Ochraceous-Tawny x Sudan Brown, or even more rufescent, approaching bright Amber Brown. This last character appears to be the most useful one for the separation of the females of the two series, though there is no sharp division. One female from Torontoy, Urubamba Valley, has the belly paler than any of the *subandinus* females and, while the crissum is a trifle deeper in color than it is in the *subandinus* examples, the specimen is less distinct from them than from the darker specimens of *melanchrous*.

It will be seen that in various respects, *subandinus* resembles *aspersiventer* (while in other particulars it is farther removed than is *melanchrous*). Thus the tendencies toward more extensive white on wings and tail and more extended black on the hind neck of the females are of this nature. The paler ventral areas and the grayer backs with more pronounced subterminal black on the mantle are in the opposite direction. The resemblances possibly may be of a relict nature, retained by a peripheral form farthest removed from the ancestral home where these particular characters were originally developed. The strong banding of young males of *subandinus* should be considered here also.

A word may be necessary regarding the specific name used for the present birds. There can be no question that *subandinus*, *melanchrous*, and *aspersiventer* are conspecific (I am unable to recognize *steinbachi* from the Cochabamba region). Typical males of *caerulescens* are gray on the back, with the black restricted to a central patch more or less concealed; in *paraguayensis* the dorsal black may be more extended and in *connectens* also. An occasional skin of *aspersiventer* and *melanchrous* has the uropygium sooty grayish instead of black, somewhat bridging this difference between *aspersiventer* and *connectens*. On the under side, *caerulescens* sometimes shows traces of cross-bars on belly and crissum marked in gray instead of black. Furthermore, *connectens* may have the breast-feathers distinctly blackish subterminally. A young male *aspersiventer* from Pitiguaya, Río Unduani (near La Paz) is gray on the lores, superciliaries, sides of head, throat, and breast and pale ochraceous on the lower under parts which are only faintly barred with light gray, though black feathering is appearing on the anterior under parts; the sides of the upper back are sooty gray, not black, and the uropygium is grayish. Though darker than *caerulescens*, the resemblance is apparent. Some young males of *caerulescens* are ochraceous posteriorly and greatly resemble *gilvigaster*. I have only two skins of *connectens* and these appear to differ from other examples, including the type, described by Hellmayr

(Field Mus. Nat. Hist. Publ., Zool. Ser., XIII pt. 3, p. 104, footnote *a*, 1924), emphasizing the variability of this form which is certainly no more than a connecting link between *aspersiventer* and *paraguayensis*. One skin of *connectens* from Vermejo, Santa Cruz, Bolivia, is similar in many ways to one of *paraguayensis* from Fort Wheeler, Paraguay, though the latter is not typical but varies in the direction of *dinellii*.

Females show even better transition. Two females of *aspersiventer* from Locotal and Songo, Bolivia, with strongly brown backs and brown caps without any black, are but slightly more strongly colored on the lower under parts and have the face less whitish, but otherwise are not immediately distinguishable from some female *caerulescens*.

Thus the entire series appears to form a good specific group of which the darkest forms are found in the Andes, the next darkest on the eastern side of the continent, and the palest in the interior. More material of *connectens* is needed, particularly females. Since *caerulescens* is the oldest valid name in this group, it becomes the specific name and is here adopted.

Records of *melanchrous* from localities other than those listed below are Garita del Sol, Huiro, Paltaypampa, Eneñas, Vitoc, and Perú between 12° and 14° S. (=Junín region).

Thamnophilus caerulescens subandinus Taczanowski

Thamnophilus subandinus Taczanowski, 1882, P. Z. S. London, p. 29—Chachapoyas; Chirimoto; Tamiapampa (type said to be from Chirimoto); ♂; Warsaw Mus.; cf. Stolzmann and Domaniewski, 1927).

The present form is discussed with *T. c. melanchrous*. It has been recorded from Chachapoyas, Chirimoto, Tamiapampa, Utcubamba, and Leimebamba, in addition to some of the localities from which material is listed below.

The Chinchao birds may not be quite typical of *subandinus* but are probably best referable to this form which apparently ranges up the Huallaga along the left bank in the upper Tropical Zone.

Specimens Examined

T. c. caerulescens.—Brazil: (states of Rio and São Paulo), 12 ♂, 12 ♀.

T. c. gilvigaster.—Brazil: Castro, Paraná, 1 ♂, 1 ♀; São Lãoveco, Rio Grande do Sul, 1 ♂, 1 ♀.

T. c. paraguayensis.—Paraguay: Río Negro, 1 ♂, 2 ♀; Fort Wheeler, 1 ♂.

T. c. dinellii.—Argentina: (Jujuy, Salta, Tucuman, and Chaco), 18 ♂, 13 ♀.

T. c. connectens.—Bolivia: Vermejo, Santa Cruz, 2 ♂.

T. c. aspersiventer.—Bolivia: Songo, 1 ♂, 1 ♀; "lower Beni," 1 ♂; Pitiguaya, 1 ♂, 1 ♀; Ticunguaya, 1 "♂" (=♀); Roquefalda, 1 ♂; Incachaca, 3 ♂, 1 ♀; Locotal, 3 ♂, 1 ♀; Jatumpampa, 1 ♂[1].

T. c. melanchrous.—PERÚ: Santo Domingo, 2 ♂, 1 ♀; San Miguel Bridge, 2 ♀; San Miguel, 1 ♂, 1 ♀; Torontoy, 2 ♂, 2 ♀; Santa Rita, 1 ♂; Idma, 3 ♂, 3 ♀; Santa Ana, 1 ♀; Chelpes, Junín, 6 ♂, 4 ♀; Utcuyacu, 1 ♂, 2 ♀; Rumicruz, 2 ♂.

T. c. subandinus.—PERÚ: San Pedro, south of Chachapoyas, 2 ♂, 2 ♀; La Lejia, 2 ♂, 2 ♀; Molinopampa, 2 ♂[1]; Chinchao, 4 ♂[1], 1 ♀[1].

Thamnophilus ruficapillus marcapatae Hellmayr

Thamnophilus marcapatae HELLMAYR, 1912 (January), Verhandl. Orn. Ges. Bay., XI, No. 1, p. 162—Chuhuasi, near Ollachea, Carabaya, 7000 ft., n. Puno, Perú; ♂; Munich Mus.

A series of twelve skins of this interesting form demonstrates a certain amount of variation in the intensity and extent of the markings, definitely in the direction of *T. n. subfasciatus*, as would be expected. Thus, while some of the adult males are deep Mouse Gray on the back, others have a more brownish tone; the flanks may have a brownish wash; the throat may be more or less distinctly, though obscurely, barred; the whole of the abdomen and under tail-coverts may be regularly barred, with the white bars exceeding the black ones in width; the tail may show white notches on both webs of the rectrices, visible even on the middle pair and sometimes nearly reaching the shaft on the inner webs of the outermost ones.

The females are, of course, quite deeply colored below though with some differences in actual hue, and vary widely in the amount of brown on the back. I have no female of *subfasciatus* but, judging by the original plate of the female cotype, it is paler than the females of *marcapatae* but not otherwise different.

Records of *marcapatae* are from Chuhuasi and Marcapata and it is possible that the male in the Raimondi collection, without locality, mentioned by Taczanowski as darker than a Cutervo specimen, belongs here also. Additional localities are given below. The Cutervo and Cococho skins recorded by Taczanowski belong to the following form.

Thamnophilus ruficapillus jaczewskii Domaniewski

Thamnophilus ruficapillus jaczewskii DOMANIEWSKI, 1924, Bull. Acad. Pol. Sci. Lettres, Cl. Sc. Math. Natur., Ser. B, p. 762—Cutervo, Perú; ♂; Warsaw Mus.

Thamnophilus ruficapillus borealis CARRIKER, 1933, Proc. Acad. Nat. Sci. Phila., LXXXV, p. 17—Leymebamba, 7000 ft.; Perú; ♂; Acad. Nat. Sci. Philadelphia.

A female from San Pedro, south of Chachapoyas, collected by Harry Watkins, is the first known example of this sex of the present form. It is very like the original figure of the female *subfasciatus* and must be

[1]Specimens in Field Museum of Natural History, Chicago.

extremely close to that form as, indeed, is noted for the males by Domaniewski and Carriker. Since the female has not been described heretofore, the following account may be serviceable. Top of head to hind neck light Bay; forehead narrowly tinged with buff. Back Argus Brown x Amber Brown; wings dusky brown with outer surface of closed wing dark Sanford's Brown; tail largely Sanford's Brown x Chestnut; middle rectrices darker but outermost pair paler with six obsolete dusky bars (strongest distally) and a buffy tip; these markings suggested on the other rectrices, especially the outer ones. Lores dull ochraceous with dusky tips; superciliary region lighter, less buffy; auriculars buffy gray; sides of neck still more grayish. Under parts deep ochraceous-cinnamon, paler on throat, much paler on belly (Cinnamon-Buff), and darker on sides, and with traces of fine dusky bars faintly visible; flanks Tawny-Olive; under tail-coverts like breast and similarly with obsolete dusky bars; under wing-coverts deep Ochraceous-Buff; inner margins of remiges Light Pinkish Cinnamon. Bill blackish (in dried skin), with distal half of mandible bluish white; feet slaty. Wing, 70 mm.; tail, 64; exposed culmen, 15; culmen from base, 20; tarsus, 27.5.

Specimens Examined

T. r. jaczewskii.—Perú: San Pedro, south of Chachapoyas, 1 ♀.

T. r. marcapatae.—Perú: Inca Mine, 2 ♂, 3 ♀; Santo Domingo, 5 ♂, 1 ♀; Oconeque, 1 ♂.

T. r. subfasciatus.—Bolivia: Nequejahuira, 1 ♂.

T. r. cochabambae.—Bolivia: Tujma, 8 ♂ (incl. type), 7 ♀; Valle Grande, 1 ♀. Argentina: Perico, Jujuy, 1 ♂.

T. r. ruficapillus.—Argentina: Quilmes, 1 ♂; Barracas al Sur, 1 ♂; La Plata, 1 ♀; Concepción del Uruguay, 1 ♂. Brazil: Monte Serrat, 2 ♂, 1 ♀; alto Itatiaya, 1 ♂, 2 ♀; Ypanema, 1 ♂; Taquara do Abundo Novo, Rio Grande do Sul, 1 ♂.

Note

Thamnophilus sp.? Taczanowski, 1874, P. Z. S. London, p. 530—"Tambapota."

Taczanowski recorded two females as indicated but made no future reference to them under this or any other species of the Formicariidae. Apparently they were the only specimens of this family collected by Jelski at this locality and any references under another name within the group are likely to refer to this record, but I have been unable to find them if they exist. The locality is equally obscure. Taczanowski makes mention of it variously, in other connections, as Tempobata and Tambopata, and it is probable that the last-named spelling is correct, though it is doubtful if it has anything to do with the Río Tambopata in

southeastern Perú since it is included among the localities visited by Jelski while collecting in the Junín region.

There is no assurance that Taczanowski's record belongs in *Thamnophilus*. The two females probably were never afterward identified by him and the account must stand as given until the specimens come to light for study.